



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,357	12/21/2001	Robert T. Mason JR.	ABME-0739/E20010060	6443
23377	7590	12/12/2003	EXAMINER	
WOODCOCK WASHBURN LLP ONE LIBERTY PLACE, 46TH FLOOR 1650 MARKET STREET PHILADELPHIA, PA 19103			FAN, CHIEH M	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 12/12/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,357

Applicant(s)

MASON ET AL.

Examiner

Chieh M Fan

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/15/03 have been fully considered but they are not persuasive.

a. Regarding claims 1, 2, 4, 6-8, 10 and 11, the applicants argue that the reference Agee fails to teach groups of data bytes that each comprises a subset of the data message. As such, Agee necessarily fails to teach transmitting the group of data bytes a predetermined number of times (see pages 11-12 of the amendment).

Examiner's response --- In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). If a reference teaches all the claimed limitations, a rejection under 35 USC 102 will be proper. The examiner suggests the claimed limitations are met by combining the references Eder and Agee. As indicated in the previous Office Action, Eder teaches a frequency hopping system that transmits groups of data messages. Each group contains a subset of data. Agee teaches transmitting the same data a predetermined of times either by using time diversity or frequency diversity. Therefore, in order to incorporate the teaching of Agee into the frequency hopping system of Eder, the data messages have to be divided into subsets of data

Art Unit: 2634

messages according to the data format of Eder. The subsets of data messages are then transmitted repeatedly a predetermined number of times. Therefore, the combination of Eder and Agee teaches the claimed limitations.

b. Regarding claims 1, 2, 4, 6-8, 10 and 11, the applicants further argue that the present invention does not supply the receiver with several duplicates of the original signal. The recited "groups of data bytes" as shown in Fig. 2, are clearly no duplicates of the original signal, nor are they the same information (see page 12 of the amendment).

Examiner's response — The applicants' arguments are rather confusing. The examiner has carefully reviewed Fig. 2 of the present invention. Fig. 2 clearly shows that the receiver is supplied with three duplicates of the original signal. For example, in the "seven data channels" case, the same information is clearly sent three times (the first duplicate being sent by channels 1-3, the second duplicate being sent by channels 3-5, and the third duplicate being sent by channels 5-7). The argument is not persuasive.

c. Regarding claims 1, 2, 4, 6-8, 10 and 11, the applicants further argue that Agee teaches a "stacked-carrier spread spectrum" (SCSS), wherein discrete multiple tones (DMT) having a substantial frequency diversity are simultaneously transmitted by the base station 11 and by each remote units 12-17 to the other. Col. 8, lines 64 – col. 9, line 2. This teaching in combination with Eder fails to render obvious Applicants' invention as recited in the claims (see page 12 of the amendment).

Examiner's response --- The Applicants only argue the teaching of Agee in combination with Eder fails to render obvious Applicants' invention as recited in the claims, but never explain why the combination fails to render obvious. The Examiner therefore cannot respond to this argument. Nevertheless, the Applicants are reminded the Examiner never relied on the text quoted by the Applicants in Agee to combine with the Eder. The portion relied by the Examiner is in the prior art section.

d. Regarding claims 3, 9, 12, 13, and 15-20, the Applicants basically argue that they are allowable because of the same reason stated in items a-c above (see pages 12-14 of the amendment).

Examiner's response – The Applicant are referred to the response to items a-c above. As stated above, the arguments are not persuasive.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4-8, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eder (US Patent 5,311,542, provided by the applicants in IDS filed 2/15/02, PTO Paper #2) in view of Agee (US Patent 6,128,276).

Regarding claim 1, Eder teaches a frequency hopping spread spectrum system wherein segments of a data message are broken into 20-bit segments. Each of the

Art Unit: 2634

segments is transmitted over a different carrier signal within a frequency range of 902 to 928 (col. 5, lines 28-34). Fig. 1 of Eder shows the message format comprises five successive segments in time. Each segment has a time duration portion for transmitting a preamble and a time duration portion for transmitting data message (also see col. 4, lines 11-36).

Eder does not teach the preamble and/or the data message are transmitted a predetermined number of times.

Agee teaches supplying the receiver with several duplicates of the original signal, but over channels that fade independent from one another, has the potential of securing continuous communication. When the same information is transmitted over several carrier channels is called frequency diversity. When the same information is transmitted several times is called time diversity (col. 1, lines 24-34). Diversity transmission combined with frequency hopping spread spectrum is used for protection against multipath fading and partial-band jamming (col. 2, lines 2-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit several duplicates of the preamble and/or the data message in the frequency hopping spread spectrum system of Eder, as taught by Agee, so as to improve the reliability of communication. Further note that, when the data message is redundantly transmitted several times, the total number of bytes transmitted is equal to the number of bytes in the data message times the number of times of transmission. Then the number of bytes in each carrier channel will be equal to the total number of bytes divided by the number of carrier channels.

Art Unit: 2634

Regarding claim 2, Eder also teaches the preamble is transmitted over a predetermined number of preamble channels for a period of time sufficient in duration such that a receiver may receive the preamble (see the message format in Fig. 1 and col. 3, lines 11-17).

Regarding claim 4, Eder further teaches each of the predetermined number of preamble channels is associated with a predetermined number of data channels (see the message format in Fig. 1, also see col. 4, lines 11-36).

Regarding claim 5, the claimed limitation is the inherent property of diversity technique.

Regarding claim 6, as described above in claim 1, Eder in view of Agee teaches transmitting the preamble several times to improve the reliability.

Regarding claim 7, when the preamble is transmitted several times as taught by Eder in view of Agee, it is inherent that the receiver will be configured to receive each duplicate of the preamble.

Regarding claim 8, if only one preamble is received, it is inherent that the receiver has to process the data message based on the information obtained from the sole preamble received.

Regarding claim 10, Eder also teaches the preamble is transmitted over a predetermined number of preamble channels for a period of time sufficient in duration such that a receiver may receive the preamble (see the message format in Fig. 1 and col. 3, lines 11-17).

Regarding claim 11, Eder further teaches each of the predetermined number of preamble channels is associated with a predetermined number of data channels (see the message format in Fig. 1, also see col. 4, lines 11-36).

4. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eder in view of Agee as applied to claims 1, 2, 4-8, 10 and 11 above, and further in view of Propp et al. (US Patent 5,944,842).

Eder in view of Agee, as described above, teaches the claimed invention including that the preamble is utilized to develop bit timing and hop frequency (col. 3, lines 10-26), but fails to teach that the preamble is concluded with a unique stop character.

The use of a unique character to indicate the end of the preamble so as to separate the preamble and the data message is well known in the art. Propp et al. teaches that, in a spread spectrum system (col. 4, lines 10-12), the use of end of sync character to indicate the end of the preamble (12 in Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a unique character to indicate the end of preamble in the system of Eder in view of Agee, so as to separate the preamble and the data message.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eder in view of Agee as applied to claims 1, 2, 4-8, 10 and 11 above, and further in view of

Sanderford, Jr. (US Patent 5,311,541, provided by the applicants in IDS filed 2/15/02, PTO Paper #2).

Eder in view of Agee, as described above, teaches the claimed invention but fails to teach the frequency hopping spread spectrum system is within a utility metering equipment. Sanderford, Jr. teaches a frequency hopping spread spectrum transceiver may be used in remote power meter reading (col. 2, line 13).

It is well known that the use of a frequency hopping spread spectrum system has the advantage such as reduce the effect of interference. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the system of Eder in view of Agee in remote utility meter reading, as taught by Sanderford, Jr., so as to reduce the effect of interference, and consequently to get a more accurate reading.

6. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderford, Jr. (US Patent 5,311,541, provided by the applicants in IDS filed 2/15/02, PTO Paper #2) in view of Eder (US Patent 5,311,542, provided by the applicants in IDS filed 2/15/02, PTO Paper #2) and Agee (US Patent 6,128,276).

Regarding claim 13, Sanderford, Jr. discloses a transceiver (106 in Fig. 1) of a frequency hopping spread spectrum system. The transceiver comprises a microcontroller (201 in Fig. 2A), a transmitter comprising a VCO (207 in Fig. 2A) and a power amplifier (212 in Fig. 2A), and a receiver comprising an amplifier (302 in Fig. 3), a mixer (303 in Fig. 3), a demodulator and a data slicer (310, 316 in Fig. 3, note that an

Art Unit: 2634

FSK detector inherently comprises a slicer). Sanderford, Jr. also teaches the each data transmission is preceded by a preamble (col. 4, lines 3-7).

Sanderford, Jr. does not teach that (1) an IF amplifier in the receiver, (2) the transmitter communicates group of data bytes that each comprise a subset of data message over a predetermined sequence of data channels, and (3) the preamble and/or the data message are transmitted a predetermined number of times.

With respect to item (1), the use of an IF amplifier in a receiver is well known in the art to improve the signal quality. Eder teaches the use of an IF amplifier in a frequency hopping spread spectrum system (244 in Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an IF amplifier at the receiver to improve the signal quality.

With respect to item (2), Eder teaches a frequency hopping spread spectrum system wherein segments of a data message are broken into 20-bit segments. Each of the segments is transmitted over a different carrier signal within a frequency range of 902 to 928 col. 5, lines 28-34). Fig. 1 of Eder shows the message format comprises five successive segments in time. Each segment has a time duration portion for transmitting a preamble and a time duration portion for transmitting data message (also see col. 4, lines 11-36). By dividing the data into segments and transmitting each segment over a different carrier frequency would reduce the effect of interference (a well known advantage of frequency hopping). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit group of data bytes that each comprise a subset of data message over a predetermined sequence of

Art Unit: 2634

data channels in the system of Sanderford, Jr., so as to reduce the effect of the interference.

With respect to item (3), Agee teaches supplying the receiver with several duplicates of the original signal, but over channels that fade independent from one another, has the potential of securing continuous communication. When the same information is transmitted over several carrier channels is called frequency diversity. When the same information is transmitted several times is called time diversity (col. 1, lines 24-34). Diversity transmission combined with frequency hopping spread spectrum is used for protection against multipath fading and partial-band jamming (col. 2, lines 2-4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit several duplicates of the preamble and/or the data message in the frequency hopping spread spectrum system of Eder, as taught by Agee, so as to improve the reliability of communication. Further note that, when the data message is redundantly transmitted several times, the total number of bytes transmitted is equal to the number of bytes in the data message times the number of times of transmission. Then the number of bytes in each carrier channel will be equal to the total number of bytes divided by the number of carrier channels.

Regarding claim 14, the claimed limitation is the inherent property of diversity technique.

Regarding claim 15, as described above in claim 13, Sanderford, Jr. in view of Eder and Agee teaches transmitting the preamble several times to improve the reliability.

Art Unit: 2634

Regarding claim 16, when the preamble is transmitted several times as taught by Sanderford, Jr. in view of Eder and Agee, it is inherent that the receiver will be configured to receive each duplicate of the preamble.

Regarding claim 17, if only one preamble is received, it is inherent that the receiver has to process the data message based on the information obtained from the sole preamble received.

Regarding claim 18, Eder also teaches the preamble is transmitted over a predetermined number of preamble channels for a period of time sufficient in duration such that a receiver may receive the preamble (see the message format in Fig. 1 and col. 3, lines 11-17).

Regarding claim 19, Eder further teaches each of the predetermined number of preamble channels is associated with a predetermined number of data channels (see the message format in Fig. 1, also see col. 4, lines 11-36).

Regarding claim 20, Sanderford, Jr. teaches the frequency hopping spread spectrum transceiver may be used in remote power meter reading (col. 2, line 13).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


Art Unit: 2634

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.


Chieh M Fan
Primary Examiner
Art Unit 2634

cmf
December 8, 2003